

CLAIMS

1. A silencer for connection to the air intake of a turbo machine, the silencer comprising:

a housing having an axis, an outlet aperture being defined at one axial end of the housing;

a plurality of axially spaced annular noise attenuating baffles, each baffle having an outer circumference and an inner circumference defining a central aperture, the central apertures of each baffle collectively defining an axial outlet flow passage to said outlet aperture;

the baffles defining a series of axially spaced generally annular partial flow passages such that air flowing through said silencer is initially split between said flow passages and then merges into the axial outlet passage;

wherein each of the annular flow passages curves radially inwards from its outer to its inner circumference in a direction towards the axial outlet.

2. A silencer for connection to the air intake of a turbo machine, the silencer comprising:

a housing having an axis, an outlet aperture being defined at one axial end of the housing;

a plurality of axially spaced annular noise attenuating baffles, each baffle having an outer circumference and an inner circumference defining a central aperture, the central apertures of each baffle collectively defining an axial outlet flow passage to said outlet aperture;

the baffles defining a series of axially spaced generally annular partial flow passages such that air flowing through said silencer is initially split between said flow passages and then merges into the axial outlet passage;

wherein the dimensions of the annular partial flow passages varies so that the velocity of air flow through the passages is greater for passages closer to the axial outlet aperture.

3. A silencer as claimed in claim 2, wherein each of the annular flow passages curves radially inwards towards its inner circumference in a direction towards the axial outlet.

4. A silencer as claimed in 3, wherein each of the annular flow passages curves radially inwards from its outer to its inner circumference.
5. A silencer as claimed in claim 2, wherein each of the annular flow passages curves radially inwards from its outer to its inner circumference with a curvature which is initially tangential to a radial plane of said axis and which curves away from said plain towards its inner circumference and in a direction towards the axial outlet.
6. A silencer as claimed in claim 2, wherein each of the annular flow passages curves radially inwards with a curvature which has no sharp discontinuities.
7. A silencer as claimed in claim 2, wherein each of the annular flow passages curves radially inwards with a radius of curvature which increases towards the inner circumference of each respective flow passage.
8. A silencer as claimed in claim 2, wherein each of the annular flow passages curves radially inwards from its outer to its inner circumference in a direction towards the axial outlet and wherein each passage has the same curvature.
9. A silencer as claimed in claim 2, wherein the axial width of the annular partial flow passages increases along the axis of the housing towards the axial outlet aperture.
10. A silencer as claimed in claim 9, wherein the axial width of each annular partial flow passage differs from that of its adjacent flow passages.
11. A silencer as claimed in claim 10, wherein the relative width of the partial flow passages is adapted so that velocity of air flow through said passages is substantially matched to the velocity profile of air flowing through said axial outlet flow passage.

12. A silencer as claimed in claim 11, wherein the axial width of the annular partial flow passages increases along the axis of the housing towards the axial outlet aperture in an arithmetic progression.

13. A silencer as claimed in claim 12 wherein said arithmetic progression is:

$$S_i = S_{i-1} (3^{(1/m)})$$

where S is the axial width of a particular partial passage, and m is the total number of partial passages.

14. A silencer as claimed in claim 2, wherein the inner circumference of each baffle is substantially the same.

15. A silencer as claimed in claim 2 wherein the housing has a cylindrical configuration.

16. A silencer as claimed in claim 2 wherein the housing has a substantially conical configuration, the outer circumference of each baffle differing from that of its adjacent flow passages to conform to the conical shape of the housing.

17. A combined silencer/air filter as claimed in claim 2 wherein the housing supports a filter membrane.